



**SEA-3 PROVIDENCE LLC  
EXISTING LIQUID PROPANE GAS FACILITY  
MODIFICATION REPORT**

**March 15, 2021**

## **1.0 INTRODUCTION AND OVERVIEW**

This Site Report is being submitted in support of the Petition for Declaratory Order (the “Petition”) filed by Sea-3 Providence, LLC (“Sea-3”) requesting that the Energy Facility Siting Board (the “EFSB”) declare that the proposed ancillary expansion (the “Project”) described herein does not constitute a Material Alteration as defined by R.I.Gen.Laws 42-98-3(b) and Rule 1.2(d) of the EFSB’s Rules of Practice and Procedure (the “EFSB Rules”). The information contained herein supports the conclusion of the Petition that the proposed ancillary expansion of the existing operation by Sea-3 in ProvPort will “not result in a significant impact on the environment or the public health, safety and welfare.” (EFSB Rule 1.2(d)).

This report is the product of a collaboration between Sea-3 Providence and its supporting team which includes:

1. Kerry Willis – Vice President of Operations and Capital Projects for Blackline Midstream, LLC
2. Ryan Boyle – Terminal Manager – Sea-3 Providence, LLC
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4. Zachary Darrow, Esq. – Darrow Everett, LLP – Legal
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8. John Shevlin – Pare Corporation – Traffic Engineer
9. Amy Austin – Power Engineers, Inc. – Environmental Engineering
10. David Halliwell – Power Engineers, Inc. – Environmental Engineering
11. Brian Stephens – S&B Engineers and Constructors – Project Manager – Process Basis of Design

### **1.1 Company Profile and Site History**

Sea-3 Providence, LLC is a wholly owned subsidiary of Blackline Midstream, LLC (“Blackline”), which was formed in 2017 as part of a joint venture with Sixth Street Partners, a global investment firm with over \$50 billion in assets under management. The Blackline leadership team, led by James Day, the Chief Executive Officer, and Justin Day, President, has extensive experience in the energy sector, particularly in the liquid propane gas (“LPG”) industry. Through its subsidiary companies, Blackline manages a diverse business engaging in the importation, storage and distribution of liquid propane gas. Blackline has two companies operating in the north east. The first, is Sea-3 LLC which is located in Newington, New Hampshire (the “Newington Site”) which was acquired by Blackline in 2017. The Newington Site is an 11 Acre facility featuring 2 storage tanks with combined capacity for 26,900,000 gallons, 4 horizontal bullet tanks and a truck rack with 5 loading lanes. Blackline’s second north east company is Sea-3 Providenc, LLC which is located at 25 Fields Point Drive, Providence, Rhode Island within ProvPort and is the location of the Project.

The Project site is located within a W3 waterfront industrial zone and is surrounded by other industrial and marine dependent uses in the Port of Providence. The Project site has been an LPG storage facility since 1975 and features a 19,000,000-gallon high rise storage tank, one horizontal bullet tank and a three lane truck rack. Prior to acquisition of the Port of Providence facility by Sea-3 Providence, the facility was previously owned and operated by Enterprise until it was mothballed in 2015.

Sea-3 Providence acquired the existing mothballed facility from Enterprise in 2018 and entered into an amended and extended lease agreement with ProvPort for the underlying land and dock usage. Upon acquisition, Sea-3 Providence engaged in an extensive modernization process to bring the facility back online. This modernization process included, without limitation, the following and represents an investment by Sea-3 Providence in excess of \$10 million:

- Engineering evaluation;
- Examination of all systems and components necessary to import cold propane by marine vessel and store it safely;
- Modernize and update truck rack;
- Renovate fire and gas detection safety system;
  - Plantwide and regional shutdown systems;
- Inspection of all aspects of the facility to ensure the integrity of the existing piping system;
- Removal of obsolete equipment and replacement with modern equipment;
- Update all control systems to meet current standards and best practices under the National Fire Protection Agency (the “NFPA”) standards; and
- Preparation of a new Fire Safety Analysis (“FSA”) in accordance with NFPA standards and Emergency Response Plan (“ERP”).

## **1.2 Current Operation and Process**

Upon completion of the incorporation of the new equipment, updating the automated safety systems, approval of the FSA by the State Fire Marshal and all government inspections, Sea-3 Providence restarted the facility in 2019 and began conducting business in the Port. To date, the site has been used exclusively for the marine importation of LPG from foreign sources. Sea-3 purchases propane from overseas and arranges for shipment into the Port where the LPG is then offloaded from the vessel at Berth 5. The Project site features a dedicated line to offload LPG from the vessel and into the 19,000,000-gallon tank (identified throughout this memo as “T-0001”).<sup>1</sup> In 2020, Sea-3 brought in 23,000,000 gallons of LPG via marine vessel across 3 total shipments. This included one prompt

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<sup>1</sup> The existing tank (T-0001) undergoes periodic internal and external inspections. The tank is inspected internally every 20 years in accordance with the American Petroleum Institute (“API”) standards and guidelines, specifically API 510, 570, 620 and 650. The last internal inspection was performed in 2010. There is an external inspection performed every 5 years. This was last done in conjunction with the modernization and restoration of the Project site by Sea-3 in 2018. There are plans to recoat the tank and perform another external inspection with scanning technology as part of the expansion of the Project.

shipment which was brought in during the summer due to lower prices<sup>2</sup> in anticipation of greater demand in winter 2020-2021.

When the LPG is offloaded from the vessel it is a cold liquid at -44 degrees F. At this low temperature the LPG is at very low pressure of approximately 1-1.5 psi. While the vessel is offloading, the tank pressure is balanced by taking vapor from the tank and delivering it back to the vessel in a closed loop system. The LPG is stored in the 19,000,000-gallon existing tank at -44 degrees F.<sup>3</sup> The tank temperature and pressure is controlled through the use of the three compressors on site. The LPG vapor from the top of the tank is compressed, cooled and condensed into a liquid and returned to the bottom of the tank in a closed loop system. The compressors are automated and run as needed. When active, the compressors run for 4-5 hours, shutdown for 4-5 hours and restart as necessary.

When the LPG is to be shipped off site, it is taken out of the 19,000,000-gallon tank and loaded onto trucks at the truck rack. As the LPG is taken out of the tank and loaded onto the trucks, it is warmed through use of two exchangers. The LPG is loaded through a custody transfer meter which was also added during Sea-3 Providence's modernization of the facility. Sea-3 Providence is a state-of-the-art facility and utilizes the best available control technology ("BACT") to control and manage the process.

The Project's automation system controls all four process variables; (1) temperature, (2) flow, (3) pressure and (4) level. This is accomplished through three tiered systems of control; (1) Safety Instrumented System ("SIS") which is engineered to perform specific control functions to fail safe or maintain safe operating conditions based on engineered safe design limits, (2) Basic Process Control ("BPCS") which controls and enables the process monitoring for the facility and equipment. It takes input from sensors and process instrumentation to provide control output based on an engineered and approved design control strategy, and (3) Operator interface and monitoring that provides a central system interface for monitoring of process data, plant conditions, and equipment operation via an operator console and HMI. Additionally, the system provides real time data as well as historical data that can be displayed locally for the operations staff.

Currently, all the LPG on site is brought in from foreign sources via marine vessel. The vessels come in large cargoes of approximately 10.6 million gallons, roughly half the size of the tank. In the winter season, it takes several cargo shipments of LPG to keep the tank inventory adequate to supply sufficient propane to meet the needs of the region in the cold seasons. The LPG stored on site is purchased and resold by an affiliate of Sea-3 Providence to many independent distributors who then in turn deliver and sell to their end consumer customers. LPG is a clean burning, versatile fuel which

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<sup>2</sup> Due to the lack of rail service currently at the Project site, Sea-3 Providence is forced to forecast and gamble on the availability of international supplies for maintaining inventories. Sea-3 has to receive as much LPG as it can store in summer since the price of marine importation of LPG is so high during the peak winter season. Once rail service is incorporated, the LPG can be brought in more ratably to meet seasonal demand.

<sup>3</sup> Any temperature above -44 degrees will cause vaporization of the LPG.

is commonly used as a source of home heating, cooking, refrigeration, clothes drying, lighting and as a transportation fuel in commercial vehicle fleets and buses. Approximately 30,000,000 – 35,000,000 gallons of LPG per season is used by consumers in Rhode Island and 450 million gallons is consumed in all of southern New England (Massachusetts, Connecticut and Rhode Island).

## **2.0 COMPANY PLANNING PROCESS**

The operational enhancements planned by Sea-3 Providence on the adjacent land parcel depicted in Figure 1 are the second phase of Sea-3 Providence's business plan for its Providence operation. The primary purpose of the proposed expansion is to incorporate the ability to bring in domestic LPG by rail to supplement and displace international marine cargos. The expansion is primarily motivated and centered around LPG supply via rail access and not storage capacity expansion. The adjacent land parcel is currently under option to lease and is being incorporated into the Sea-3 Providence operation. The parcel is currently served by an existing rail line and is located at \_A.P. 56, Lot 356, Fields point drive & Seaview Drive. Sea-3 Providence obtained the option to lease the parcel with the intention of evaluating the integration of rail into the long-standing marine importation business. This was a decision made after careful consideration of the future demand for LPG in Rhode Island and the New England region and the relative availability and economics of domestic propane supplies. According to the Propane Gas Association of New England's New England Propane Market Evaluation, the region consumed 766,000,000 gallons of LPG in a twelve-month period during 2016-2017. Based on industry data, Sea-3 Providence anticipates an increase ranging from 3 percent to 12 percent in annual growth of LPG usage in the region. In fact, the 2021 forecast for market demand anticipates between 900 million and 1.4 billion gallons of LPG consumption in New England, with between 37.9 million and 57.9 million gallons in Rhode Island alone.

The demand cannot be reliably met without inclusion of rail transportation of propane at Sea-3 Providence and integration with the existing large storage system. Sea-3 Providence needs to expand its footprint to the adjacent parcel to access the existing rail and build out the offloading infrastructure. (See Site Plan attached as Exhibit 9) (See Figure 1). Marine cargos are historically more expensive and less predictable for scheduling than rail transportation which is the industry standard. Additionally, inclusion of rail service will allow Sea-3 Providence to purchase LPG from domestic sources in the United States, not exclusively from foreign sources. Blackline leadership acquired this existing site in Providence with the intent of increasing the amount of LPG which comes through the Port of Providence to 80- 100,000,000 gallons of thruput per year in order to meet the projected need and demand in the region over the next decade in a way that ensures consumers will not run out of this critical product that ensures their comfort and safety during cold winter periods. LPG is a cleaner and often more affordable alternative to oil. It is also the alternative heating resource for customers in rural areas where the natural gas infrastructure is lacking.

Rail service to the Sea-3 Providence operation is essential to the long-term viability of the business in the Port. Without it, the terminal cannot be an industry leader. In large part, the lack of a rail operation is what kept Enterprise from keeping the terminal in operation and led to the mothball

closure of the terminal in 2015. Sea-3 Providence has determined that the facility can only be viable in the longer term by connecting to rail service and that the consumers in Rhode Island and the New England region will benefit from the integration of domestic supplies via rail with international cargos and the large existing storage to create a much more reliable and economic supply system to meet their LPG needs. The completion of this Project will allow Sea-3 Providence to develop a robust business that has sufficient, consistent, and flexible supply on hand to provide a cost effective, clean alternative to oil for Rhode Islanders. Once the enhancements and inclusion of the adjacent parcel into the existing operation are complete, Sea-3 Providence will be the regions only cold storage facility with both rail and marine service making it the most reliable and cost-effective source of LPG in the region which will be a significant benefit to the state and the region. Additionally, Sea-3 Providence is interested in being on the frontline of the development of renewable LPG. Rail access is critical to the Sea-3 Providence renewable propane strategy and without the ability to incorporate rail into its business model, renewable LPG will not be an option to be pursued in Rhode Island.

Without rail, the large storage at this terminal will be limited in its utility to the periods of time when international LPG supplies are available and economic. The volatility of the international supplies causes the terminal to be a sporadic source that the regional LPG distributors cannot completely rely on when their other suppliers run out of the limited amount of LPG that they can handle at their rail served sites with small storage. This is a proposal to provide the region with a fully integrated facility that can reliably supply the volumes of LPG that is needed at competitive economics. This will remove barriers from conversion of heating oil users to propane and improve the long-term health of the company and ensure the availability of sustainable clean energy to the region.

### **3.0 STATEMENT OF NEED AND PURPOSE**

The demand for LPG in the nation and the region continues to rise. In order to meet the demand in New England, Sea-3 Providence intends to grow its operation in Providence to provide up to 80-100,000,000 gallons of LPG to distributors in the region who supply the consumers. The ability to bring in LPG via rail is essential to meeting that goal. The expansion to the adjacent parcel makes rail importation of LPG possible due to the existing connectivity to the rail track and the area to build the infrastructure (See Figure 1). The other terminals servicing Rhode Island are rail only. These terminals can only bring in a limited amount of supply via one source. If rail is disrupted, they have no product resupply option. Conversely, right now Sea-3 Providence only can bring in LPG via international marine vessel which is often more expensive and less reliable. Sea-3 Providence would be the most reliable source of propane due to being the only terminal in the area with the flexibility to utilize two methods of resupply combined with large existing storage for unparalleled continuity of supply for the benefit of the distributors who need the reliability to guarantee their consumer customers do not experience a disruption in their supply of this critical product.

In order to meet the demand projected without increasing the footprint to access the rail, Sea-3 Providence would have to bring in 8-10 marine vessels a year. That would be one every two to three

weeks during the peak demand winter season between November-March. This creates a problem in that the international cargos cannot be depended on to be always available and economic. Thus, without the flexibility of rail access, Sea-3 Providence would have to continue to try to be viable despite periods of time when it cannot properly or economically supply its distributor customers. This causes the distributors to be reluctant to depend on Sea-3 Providence as a supplier and leaves the large existing storage underutilized resulting in much higher risk of supply outages for the ultimate LPG consumers across the region.

The spot market price for propane in the USA is largely determined by the benchmark price at Mont Belvieu, Texas which can be extremely volatile. Over the past twelve-month period, the Mont Belvieu benchmark price for propane has been as low as 20 cents per gallon and as high as \$1.05 per gallon. The existing large storage at Sea-3 Providence helps dampen the volatility in propane pricing in the region due to the ability to build or tear inventory depending on the market pricing, however, with only marine large cargo purchasing to fill the terminal storage, the price exposure volatility is amplified. The addition of rail will allow optimization of the supply purchases between marine and rail in real time to help achieve the lowest cost of supply and in turn keeping costs down for the consumer. The Project will provide for the flexibility for marine vessels and/ or rail to fill the large storage tank whenever inbound supply exceeds the truck rack demand. Conversely, when truck rack demand out paces the rail service or rail service is interrupted by weather or other railroad infrastructure issues, the cold propane in the large storage tank will supply the truck rack. Also, the Project will be able to deliver supply arriving on railcars directly to the truck rack if the supply and demand are reasonably balanced volumetrically. This unique logistical flexibility that will exist at Sea-3 Providence with the Project will result in a much more reliable supply source for the propane distributors than currently exists in the region and with the ability to optimize supply costs by purchasing the lowest supply cost alternatives in real time to help protect the distributors from extreme price fluctuations. Sea-3 Providence cannot provide this reliability and competitiveness for the ultimate benefit of the consumer without adding rail supply to complement the existing marine vessels and the related infrastructure proposed in the Project.

The other source point for bulk LPG in RI is located in North Kingstown and is a rail only supplied facility. This small facility only has 240,000 gallons of storage capacity and the ability to bring in 6 rail cars twice per day. Once the facility depletes the inventory that arrives on a rail shipment, they have no supply until the next shipment comes in. By comparison, Terryville, Connecticut's facility has storage of 540,000 gallons which can hold rail shipped LPG. The Sea-3 Providence proposal would equal the rail storage capacity of Terryville, which is closer to industry standard than the other Rhode Island source, while having the additional capacity provided by the current vessel-based business. This is essential capacity needed to meet the growing demand in Rhode Island. In fact, the Providence area has been identified as the 11<sup>th</sup> largest growth area for LPG in the nation.

Propane growth is anticipated in Rhode Island due to the desire to shift away from oil as a heating source and move towards cleaner solutions. However, due to challenging bedrock conditions in the area, it is often difficult and expensive for customers who do not reside in areas with existing natural

gas infrastructure to get access to alternatives to oil. These are the customers who turn to LPG as a cleaner alternative home heating source. The average home-based LPG tank is 250 to 500 gallons.

Reliable supply remains a barrier to additional consumer conversions from oil to propane which is why Sea-3 Providence identified this terminal as an opportunity back in 2018. The fulfillment of this business plan will provide Rhode Island with a terminal capable of meeting demand and providing a reliable supply to remove the barrier to conversion in the state for more consumers. With this addition of rail and minimal expansion of storage capacity, less than 4 percent, Sea-3 Providence will be able to meet the growing demand for clean propane in the state and region, ensure supply availability is not disrupted and provide the distributors and end customers with the most competitive option for meeting that demand growth.

## **4.0 PROJECTION DESCRIPTION**

The proposed Project expansion before the EFSB is marginal in comparison to the longstanding use and operation of the original Project site. This proposal is an ancillary expansion intended to achieve operational efficiencies and diversify product acquisition to meet increasing demand and provide flexibility to keep the cost of LPG down for the consumer. By diversifying its method of bringing LPG onto the site via the incorporation of rail service to the terminal, Sea-3 Providence can bring greater supply predictability to the region and relieve barriers to expanded use of clean propane as an alternative to home heating oil. Sea-3 Providence's business plan contemplates the expansion of its operation to store and sell approximately 80-100,000,000 gallons of LPG per year and become the regional leader in LPG storage and distribution. In order to reach this goal, Sea-3 Providence must incorporate multiple supply options for obtaining product from the producers. Presently, the site is only set up for marine vessel importation of LPG from international sources.

Because marine vessel supplies have more price volatility and are often substantially more expensive than rail supplies, the current Sea-3 Providence terminal can be more expensive for the distributors and end consumers. If Sea-3 Providence can incorporate rail service, it will become less dependent upon marine vessel for obtaining its product and can become more price competitive. To accomplish this goal, Sea-3 Providence has planned a 3 phased expansion of its operation in ProvPort. This expansion involves incorporating the adjacent vacant parcel of land into its operation in Providence. (See Process Basis of Design attached as Exhibit 1).

Sea-3 Providence has an option to lease the adjacent land parcel which it must exercise by December 31, 2021. (See Figure 1). This parcel is essential to Sea-3 Providence's operation as it cannot accommodate the planned ancillary operational expansion without the adjacent land. The adjacent site is already connected to an existing rail line. Phase I of the planned Project expansion would incorporate extending the rail spur deeper into the Project site and adding a second parallel track.<sup>4</sup>

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<sup>4</sup> The rail spur will accommodate shipments via rail from an engine carrying 16 rail cars per shipment. The railroad delivers one rail shipment per day.



This will not impact area traffic as the rail spur is deep within ProvPort and crosses abandoned portions of Fields Point Drive and Sea View Drive. Phase I will also involve the installation of the infrastructure to offload the LPG from the railcars into six 90,000-gallon horizontal bullet storage tanks via a piping manifold that will be attached to the rail cars for offloading by four compressors to facilitate movement of the liquid LPG and vapor into the storage bullets.<sup>5</sup> (See Rail Process Flow Diagram attached as Exhibit 2). These storage bullets will have a minimal 4% increase in the amount of LPG that can be stored onsite.<sup>6</sup> This is simply creating a more efficient and reliable method to meet demand during the peak demand seasons versus having to receive all product via marine vessels and storing all the LPG in the 19,000,000-gallon cold tank. Rather, the bullets will allow Sea-3 Providence to deliver the LPG that is received via the rail cars to be delivered directly to the truck rack to meet rack demand. If there is no truck rack demand, the LPG can be stored for the short term and then sent to the truck rack as needed when the distributors arrive for loading.

Phase II of the planned ancillary expansion of the operations in Provport is the installation of two more lanes for transport loading and distribution. Finally, Phase III of the Project involves the installation of the refrigeration system to take ambient propane from the bullet storage, chill the propane down to -44°F and store it in the existing large cold storage tank.

The Project enhancements and incorporation of the adjacent parcel will enable Sea-3 Providence to be a viable business in the Port of Providence. (See Process Basis of Design for equipment list on new parcel attached as Exhibit 1). This area of the City is designated and reserved for businesses like Sea-3 Providence and the City actively recruits marine industrial uses into ProvPort. Sea-3 Providence must diversify its method of obtaining product to meet its goal of increasing its output to 80-100,000,000 gallons of LPG annually out of its Providence Terminal. As detailed extensively in this report's remaining sections, there will be no significant impact on the community or the environment. The amount of storage on site is only going to increase marginally but the efficiency of the operation will increase dramatically by being able to bring LPG to the terminal via both marine vessel and rail. Rail is the common industry practice and the method utilized by the other Rhode Island terminal in North Kingstown. The proposed incorporation of the adjacent parcel into the Sea-3 Providence operation will not result in any new hazardous materials (technically the propylene used as a refrigerant is a slightly different molecular structure of propane and given the size of the refrigeration system currently being engineered, the Project will not exceed the 10,000-pound threshold for hazardous material quantity of propylene) or risks to the community and environment. This Project will protect the good jobs already at the facility and bring \$15-20 million in new investment into the City and State while creating 50 new construction jobs. If the Petition is granted, construction will begin in short order following all required state and city approvals and be operational by the summer of 2023.

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<sup>5</sup> It is not likely that all six storage bullets will be installed immediately. Rather, as demand increases as projected, the Project will scale up to meet demand. The plan does not involve more than six storage bullets.

<sup>6</sup> When fully operational, the six bullet storage tanks will increase the maximum storage capacity of Sea-3 Providence by less than 4 percent.

## 5.0 DESCRIPTION OF THE AFFECTED NATURAL ENVIRONMENT

### 5.1 Introduction

The Project Area is located within an existing liquid propane facility and former salt storage warehouse in the Port of Providence, specifically at 25 Fields Point Drive in Providence, Rhode Island (Figure 1). The Providence River lies approximately 230 feet from the Project Area to the east. In this area the Providence River is defined by a walled channel and shipping berths, which allow loading and off-loading of cargo ships. Existing roadways border the Project Area with Fields Point Drive to the west, Harborside Boulevard to the southeast and Sea View Drive to the northwest. Both Sea View Drive and Harborside Boulevard have been abandoned to accommodate this project. Additionally, an existing railroad line runs parallel to Fields Point Road with one spur ending at Fields Point Road and another continuing to the property on south side of Harborside Boulevard. According to the EFSB Rules, a detailed description of the environmental characteristics of the “Study Area” is required. As shown in Figure 2, the Study Area is the area within 500 feet on all sides of the Project. As permitted by EFSB Rule 1.6(F)(3), several natural and environmental descriptions (climate and weather and geology) have not been addressed in this report, since the Project is located within a heavily industrialized area and lies within an industrial park, and the Project will not impact these resources.

### 5.2 Soils

#### 5.2.1 Soil Map Units

Soils within the Study Area were obtained from the United States Department of Agriculture (“USDA”) National Resources Conservation Service (“NRCS”) Web Soil Survey (2020). Soils across the landscape have been broken down into map units that have been named according to the taxonomic classification of the dominant soils within the map unit. Soils within each unit have similar characteristics such as slope, drainage class, and texture. Four map units are within the Study Area and are displayed in Table 5-1 below.

**TABLE 5-1 CHARACTERISTICS OF SOIL MAP UNITS WITHIN THE STUDY AREA**

<b>Soil Map Unit Symbol</b>	<b>Soil Map Unit</b>	<b>Acres</b>	<b>Drainage Class</b>	<b>Percent Slope</b>
UD	Udorthents-Urban land complex	46.3	Moderately well drained to excessively well drained	Not Listed
UrS	Urban land, sandy substratum	24.4	Not Listed	0-3
FtA	Fortress sand	3.3	Moderately well drained	0-3
Ws	Water, saline	6.9	Not Listed	Not Listed

The four map units are further described below based upon classifications in the *Soil Survey of Rhode Island* (Rector 1981).

**Fortress Sand, 0 to 3 percent slopes**

This map unit has nearly level to gently sloping, areas that are moderately well drained soils formed in thick deposits of human transported material derived mainly from dredged sand, marsh, and dune materials.

**Udorthents-Urban Land Complex**

This map unit consists of moderately well to excessively drained soils that have been disturbed by cutting or filling, and areas that are covered by buildings and pavement. The areas are mostly larger than 5 acres. The complex is about 70 percent Udorthents, 20 percent Urban land, and 10 percent other soils.

**Urban Land, 0 to 3 percent slopes, sandy substratum**

This map unit consists mostly of sites for buildings, paved roads, and parking lots used for beaches. The impervious area of this map unit is underlain by beach and dune sand deposits, dredge sand, and in some areas tidal marsh deposits (peat). Water tables are usually within 1 to 4 feet below the pavement surface, some areas are subject to tidal and coastal storm flooding.

**Water, saline**

This map unit consists of saltwater bodies (ocean, bay, estuaries, coastal lagoons, and brackish areas) subject to tidal fluctuations.

## **5.2.2 Environmental Land Use Restriction**

The Project Area is identified as a state-listed site regulated by the Rhode Island Department of Environmental Management (“RIDEM”) Office of Waste Management due to certain environmental impacts to soils and groundwater from historical operations (2015). Environmental conditions are currently being assessed; as such, soil-disturbing work within the Project Area will be subject to the requirements of an Environmental Land Use Restriction (“ELUR”) (2015) and Soil Management Plan (SMP), included within the ELUR. (Exhibit 3).

The SMP exists for the Project Area where soil and groundwater are determined to be contaminated with certain hazardous materials and/or petroleum in excess of applicable residential or industrial/commercial Direct Exposure Criteria (RIDEM 2015). According to the SMP, all soils are presumed to be regulated unless it can be demonstrated to the RIDEM through sampling and laboratory analyses that the soils do not need to be regulated.

## **5.3 Groundwater**

The RIDEM classifies all of the state’s groundwater resources and establishes groundwater quality standards for each class (RIDEM 2019a). The four designation classes are GAA, GA, GB, and GC. Groundwater classified GAA and GA is to be protected to maintain drinking water quality, whereas groundwater classified GB and GC is known or presumed to be unsuitable for drinking water use

without treatment. The Study Area lies within a RIDEM designated GB groundwater resource area. The remaining portion of the Study Area (8.5%) consists of the Providence River.

There are no known wellhead protection areas within the Study Area (RIDEM 2019b). Businesses and residences within the area are connected to the City of Providence municipal water supply.

Based on geotechnical investigations within the Project Area, groundwater is expected to be present between approximately six to eight feet below grade. Dewatering may be necessary due to groundwater infiltration or periodic stormwater runoff. Groundwater will be managed in accordance with the existing ProvPort RI DEM Environmental Land Usage Restriction and ProvPort Stormwater Management Plan (SWMP). (Exhibit 4). Based on the current operation of the facility, Sea-3 has filed a “No Exposure Certificate” on June 21, 2019 under RI DEM’s Multi-Sector General Permit for Storm Water Discharge Associated with Industrial Activity. While there will be a construction period storm water management plan implemented, upon completion of the expansion project discussed herein, Sea-3 expects to maintain its present “No Exposure Certificate” as there will be no long-term changes to the site conditions.

## 5.4 Surface Water

No surface water is located within the Project Area.

The Survey Area contains the tidally influenced Providence River (waterbody RIDEM identification No. RI0007020E-01B) that is located approximately 230-feet east of the Project Area. The Providence River is classified as Category 5 Waters, according to the RIDEM List of Impaired Waters that was developed to provide information on Rhode Island water quality required biennially by Section 305(b) and periodically by Section 303(d) of the federal Water Pollution Control Act (the Clean Water Act) (RIDEM 2013). Category 5 Waters are impaired or threatened for one or more designated uses by a pollutant(s) and requires a Total Maximum Daily Load (“TMDL”) (RIDEM 2012). TMDL refers to the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. The term also refers to the waterbody specific studies completed to determine the allowable pollutant levels and the pollution control activities needed to restore water quality. Also, this section of the Providence River that abuts the Project Area has a water quality standard class as SB1 {a} that is impaired due to fecal coliform, total nitrogen, and dissolved oxygen (RIDEM 2013). The use of the Providence River is limited because of poor water quality.

The Providence River does support populations of marine fisheries, such as Atlantic menhaden (*Brevoortia tyrannus*). The river also supports populations of crustaceans, such as blue crab (*Callinectes sapidus*). RIDEM has monitored hypoxic (low oxygen levels) conditions in the Providence River which has led to reported fish kills within the river.

The Providence River abutting the Project Area is classified by the Rhode Island Coastal Resources Management Council (“RICRMC”) as Type 6 Waters which is described as Industrial Waterfronts and Commercial Navigation Channels (2011). Within Type 6 waters water-dependent industrial and commercial activities take precedence over all other activities including recreational boating and fishing.

## 5.5 Vegetation

No vegetation exists within the Project Area. The land surface consists of asphalt pavement, concrete from the former warehouse building and a stone containment berm around the existing above ground storage tank.

The Study Area contains limited vegetation that includes grasses, turf fields, sparse shrubs, and old field habitats.

## **5.6 Wetlands and Watercourses**

Watercourses and associated wetlands within the Project Area were identified based on a desktop review of Rhode Island Geographic Information System (“RIGIS”) wetlands data (RIGIS 1993). No wetlands or watercourse were identified in the Project Area. The Providence River was identified within the Survey Area. The Project Area is located within the RICRMC jurisdiction.

Wetlands are resources which have ecological functions and societal values which are subject to federal and state regulations. Wetlands are characterized by three criteria: (i) the presence of undrained hydric soil, (ii) a prevalence (>50 percent) of hydrophytic vegetation, and (iii) wetland hydrology, where soils are saturated near the surface or flooded by shallow water during at least a portion of the growing season (USACE 2012). In accordance with the provisions of the Rhode Island Fresh Water Wetlands Act and Rules (“FWW Rules”), RIDEM (2014) regulates freshwater activities in and around streams and open water bodies which include rivers, streams, ponds, Areas Subject to Storm Flowage, Areas Subject to Flooding, and floodplains. A river is any perennial stream indicated by a blue line on a United States Geological Survey (“USGS”) topographic map. If the stream or river is greater than 10 feet wide, the area within 200 feet of each bank is regulated as a 200-foot riverbank wetland.

The Providence River lies outside the Project Area work scope but is within the Survey Area. A walled channel exists between the Providence River and the Project Area. The Providence River is tidally influenced in this area.

The Providence River is over 10 feet wide and has a regulated 200-foot riverbank wetland. The 200-foot riverbank buffer zone of the Providence River crosses into the Project Area. In addition, the Project Area is located within the Federal Emergency Management Agency (“FEMA”) 100-year floodplain associated with the Providence River (FEMA 2015). The base flood elevation within the Project Area is 12-feet.

## **5.7 Wildlife**

### **5.7.1 Urban Wildlife**

The Project Area is located within an industrialized section of the City of Providence. Landscape features include a dirt/stone substate, a stone containment berm, paved parking lots, paved roadways, developed lands and buildings, and railroad tracks. Vegetation is non-existent within the Project Area.

The Providence River within the Study Area provides habitat for waterfowl, seabirds, and shorebirds that are adapted to urban settings. Vegetation is limited within the Study Area and includes grasses,

forbs, old fields, and minimal shrubs that provide habitat to urban wildlife. Table 5-2 lists potential species utilizing the Study Area and the Providence River (DeGraaf and Yamasaki 2001).

**TABLE 5-2 URBAN WILDLIFE SPECIES**

Common Name	Scientific Nomenclature	Species Type
Gray Squirrel	<i>Sciurus carolinensis</i>	Mammal
Raccoon	<i>Procyon lotor</i>	Mammal
Striped Skunk	<i>Mephitis mephitis</i>	Mammal
Norway Rat	<i>Rattus norvegicus</i>	Mammal
House Mouse	<i>Mus musculus</i>	Mammal
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Bird of Prey
Domestic Pigeon	<i>Columba livia domestica</i>	Bird
European Starling	<i>Sturnus vulgaris</i>	Bird
House Sparrow	<i>Passer domesticus</i>	Bird
Mourning Dove	<i>Zenaida macroura</i>	Bird
Mallard Duck	<i>Anas platyrhynchos</i>	Waterfowl
American Black Duck	<i>Anas rubripes</i>	Waterfowl
Canada Goose	<i>Branta canadensis</i>	Waterfowl
Mute Swan	<i>Cygnus olor</i>	Waterfowl
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	Seabird
Ring-billed Gull	<i>Larus delawarensis</i>	Shorebird

## 5.7.2 State-Listed Species

No Rhode Island-listed species are located within the Project Area or Survey Area according to the Rhode Island Natural History Survey database (RIDEM 2019c).

## 5.8 Air Quality

The National Ambient Air Quality Standards (NAAQS) were established by the Federal Clean Air Act for pollutants considered harmful to public health and the environment. The EPA has set NAAQS for six criteria pollutants: Ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), particulate matter (PM), sulfur dioxide (SO<sub>2</sub>) and lead. One of the most widespread and persistent pollution problems is ozone (NO<sub>2</sub> and volatile organic compounds (VOCs) play a role in ozone formation).

The Clean Air Act requires state and local air pollution control agencies to adopt federally approved control strategies to minimize emissions of these criteria pollutants. The resulting body of regulations is known as a State Implementation Plan (SIP). SIPs generally establish limits or work practice standards and include preconstruction permit requirements for projects that may result in emission increases. Rhode Island (RI) has submitted SIPs to EPA for attainment and maintenance of all criteria pollutant NAAQS. Most recently in March 2017, EPA approved RI's SIP submittal determining that RI has adequate provisions to prohibit in-state emissions activities from significantly contributing to nonattainment or interfering with maintenance of the O<sub>3</sub> standard in other states. In addition, the March 2017 EPA approval concluded that RI has adequate provisions to prohibit in-state emissions activities from significantly contributing to nonattainment or interfering with maintenance of the PM standard in other states. Regulations in place for the control of NO<sub>2</sub>, CO, SO<sub>2</sub>, VOC, and lead have also been approved by EPA.

## **6.0 DESCRIPTION OF AFFECTED SOCIAL ENVIRONMENT**

### **6.1 Introduction**

According to the EFSB Rules, a detailed description of the social environmental characteristics of the Study Area is required. The Study Area is wholly within the City of Providence and is subject to the City of Providence Comprehensive Land Use Plan. Based on the nature of the Project (an ancillary enhancement of current operational capacity through incorporation of the rail connection on the option parcel) and the limited scope of the proposed work, information is not being provided on regional population trends, or employment conditions as permitted by EFSB Rule 1.6(F)(3), since the Project will not impact these resources.

### **6.2 Land Use**

The Project Area is partially within an existing liquid propane facility in the Port of Providence and includes vacant land to the south of the facility for which Sea-3 has an option agreement which it intends to exercise prior to December 31, 2021, a portion of an existing railroad track, and two abandoned roadways. Land use within the Project Area is described as Other Transportation (terminals, docks, etc.) (RIDEM 2011) and the W-3 zoning district described as Port/Maritime Industrial Waterfront District. Under the Zoning Ordinance of the City of Providence (the “Ordinance”), the W3 zone is “intended to promote maritime industrial and commercial uses within the areas of Providence’s waterfront, protect the waterfront as a resource for water dependent industrial uses, and facilitate the renewed use of a vital waterfront.” Sea-3’s use of the Project Area is permitted by right under Article 12 of the Ordinance subject to Development Plan Review of the site plan for the Property to ensure compliance with all dimensional, safety and public works requirements.

The Study Area is within the W-3 zoning district described as Port/Maritime Industrial Waterfront District and I-2 zoning district described as Educational Institutional District. The Educational Institutional District is within the western portion of the Study Area and includes the campus of Johnson and Wales University Harbor Campus. The area includes a small portion of a parking lot and a sports field according to Providence GIS (2014). The northern portion of the Survey Area includes land uses described as a water and sewage treatment plant, waste disposal, and industrial. There are no residences found within the Study Area, with the closest private resident residing approximately 1,500 feet from the Project. Johnson & Whales University abuts the Port of Providence to the west with parking lots and athletic fields being the closest land use to the project. The closest building and resident’s hall are both approximately 1,500 feet from the Project.

Land use and zoning districts within the Study Area are shown in Figure 3 for Land Use/Zoning.

### **6.3 Visual Resources**

The Project Area is within an existing liquid propane facility within the Port of Providence and will utilize portions of abandoned transportation infrastructure as well as the former warehouse site. A walled channel and paved port loading/unloading areas separate the Providence River from the Project Area.

The majority of the Study Area is characterized by industrial port areas along the Providence River. Open space within the Study Area includes vacant lands and athletic fields associated with Johnson and Wales University Harbor Campus and the open waters of the Providence River. There are no major highways within the Study Area, only two-lane paved roadways.

## **6.4 Noise**

Noise in the vicinity of the Study Area is typical of a busy industrial port and urban area. Activities within the industrial port being the predominant source of noise. For the most part, the Study Area is characterized by industrial and educational land uses. Ambient sound levels are influenced by diverse factors such as train traffic, vehicular traffic, and industrial activities pertaining to Port of Providence. Noise receptors include Johnson and Wales University Harbor campus to the east, the wastewater and sewage treatment plant to the north, and the additional surrounding industries located in the Port of Providence.

## **6.5 Historic and Cultural Resources**

Cultural Resources staff have researched the land development and use history of the project area through the analysis of historic maps and documents, and aerial photographs. The entire southern portion of Fields Point, including the project area, was constructed with fill soils in Providence Harbor between 1939 and 1959. Fill soils may contain historic archaeological materials but not in their original context; no archaeological sites are present within the project area as the soils were recently deposited. Materials outside of their original context have little value as historic resources. No above-ground resources that pre-date the mid-twentieth century are present in this location. Five National Register of Historic Places (“NRHP”) listed above-ground properties are within one kilometer of the project, all associated with sewage treatment activities on Fields Point.

## **6.6 Transportation**

The Project is located within ProvPort off of Fields Point Drive and would gain access to the site using this street. The Project is inaccessible without passing through security check points and as such is screened off by fencing from the main flow of traffic off of Allens Avenue. A traffic analysis has been prepared by John Shevlin of Pare Corp. and is attached to this Site Report as Exhibit 5. The portion of Fields Point Drive at which the proposed rail spur would be located has previously been abandoned by the City of Providence to Prov Port and is not open to general public traffic.

## **7.0 IMPACT ANALYSIS**

This section presents an analysis of the potential impacts of the Project on the existing environmental and social surroundings within the Study Area.

The Project will be constructed in a manner that minimizes the potential for adverse environmental impacts. Utilizing the existing industrialized area will minimize the impacts to environmental and



social resources. Any anticipated minor impacts are addressed within the following sections. There are no expected impacts to climate and weather or geology.

A monitoring program will be conducted by Sea-3 Providence to verify that the Project is constructed in compliance with all relevant licenses and permits and all applicable federal, state and local laws and regulations. Design and construction mitigation measures will be implemented so that construction-related environmental impacts are minimized.

## **7.1 Soils**

Soil within the proposed Project Area is assumed to be contaminated according to former land uses and/or historic filling practices according to the ELUR. Given the industrial usage of the Project Area, soil characterization will take place in advance of construction, where feasible, to identify management procedures for any excess soils that cannot be reused as backfill. Appropriate soil management procedures will be used for handling, managing, and disposing or reusing of impacted soil.

Specifically, soil generated within the Project Area will be managed in accordance with the applicable ELUR, site-specific environmental guidance. The ELUR is attached as Exhibit 3. Additionally, ProvPort is subject to a stormwater management plan which is attached hereto as Exhibit 4 (“ProvPort SWMP”). The parcels which comprise the Project Area are not expressly subject to the ProvPort SWMP as the Protect Area has previously received a “No Exposure Certification” from the RI DEM. (Exhibit 6).

During construction related activities, portions of the Project Area will be exposed to wind and precipitation that have the potential to increase erosion and sedimentation. As part of the permitting process, a Construction Period Storm Water Management Plan (“SWMP”) will be developed and a Soil Erosion and Sediment Control Plan (SESC Plan) will also be developed and implemented during the construction phase of the Project. The SWMP Plan will be maintained on-site and updated throughout the Project to reflect environmental inspection reporting and Best Management Practices (“BMPs”). Typical BMPs include straw wattles, catch basin inserts and dust control measures, as well as other erosion and sedimentation control measures. These devices will be inspected by environmental monitor during construction and repaired or replaced if necessary. SESC measures will be selected to minimize the potential for soil erosion and sedimentation in areas where soils are disturbed, in accordance with the SWMP and ELUR.

In the vicinity of active construction sites within the road ROW, catch basins will have inserts of geotextile fabric or other equivalent controls. Dust monitoring and wet methods (e.g., water spraying) will take place to mitigate the potential for fugitive dust, as needed.

## **7.2 Groundwater Resources**

RIDEM designated the groundwater for the Study Area as GB, or water not suitable for human consumption without treatment. Project construction and operation is not expected to impact the groundwater quality. Groundwater within the proposed construction areas may be impacted by contaminants from former land uses.

If excavation dewatering is necessary within the Project Area, water will be tested and containerized for off-Site disposal or properly tested and treated on-site for subsequent discharge to the ground surface through an approved infiltration basin in accordance with the SWMP. If treatment and recharge is required, dewatering activities will comply with the Rhode Island Storm Water Program and Rhode Island Pollutant Discharge Elimination System (“RIPDES”) Regulations. Typical BMPs for treatment and recharge include dewatering basins, filter bags and filter socks. Water trucks may be utilized when site restrictions make it difficult to utilize other dewatering methods. Dewatering flow shall be controlled so that it does not cause scouring or erosion. Distance to sensitive areas, direction of flow (toward or away from protected or sensitive areas, such as wetlands, ponds, or rivers), ground conditions, volume of water, and pump rate will be considered. Dewatering areas will be cleaned, and equipment removed as soon as dewatering is complete.

### **7.3 Wetlands and Watercourses**

There are no wetlands or surface waters located within the Project Area and the Providence River is the only surface water within the Study Area. There are no anticipated impacts to surface waters or wetlands within the Survey Area. While construction activities do temporarily increase risks for soil erosion and sedimentation, appropriate BMPs will be implemented and maintained in accordance with the applicable ELUR, site-specific environmental guidance, and/or SWMP to effectively control sediments within the Project Area. In addition, a walled channel exists between the Project Area and the Providence River which limits any potential impacts to surface waters outside the Project Area.

The Project will not adversely impact residential, commercial and recreational activities along the Providence River during construction.

### **7.4 Vegetation**

The Project Area does not contain vegetation or landscaped features. Therefore, Project-related construction will have no impacts to vegetation.

### **7.5 Wildlife**

Wildlife is likely discouraged from utilizing the Project Area due to lack of vegetation, the lack of wildlife corridors, and anthropomorphic disturbances, with the exception of species known to adapt to these environments. Project construction may result in a temporary displacement of those localized species inhabiting these areas, however, there will be no permanent loss of available habitat within the Project Area.

### **7.6 Air Quality**

#### **7.6.1 Construction Impacts**

There are two potential sources of air quality impacts associated with the construction of the Project – dust and vehicle emissions – neither of which are expected to be significant. During earth disturbing activities, the contractor will deploy dust mitigation measures including wetting and stabilizing soils as necessary to suppress dust generation. Paved surfaces will be reestablished which will not be susceptible to erosion, consequently fugitive dust emissions will be low. In addition,

minimal quantities of earth will be moved or disturbed during construction. Therefore, any impacts from fugitive dust particles will be of short duration and localized.

Emissions generated by the operation of construction machinery (emissions resulting from the combustion of fuel in vehicle engines - CO, NO<sub>x</sub>, SO<sub>x</sub>, VOC, and PM) are short in duration and generally not considered significant.

### **7.6.2 Operation Impacts**

This Project will not require an increase in the permitted emissions from this facility. Sea-3 Providence is currently permitted to operate two flares for the control of LPG emissions from its bulk LPG tank and truck loading racks. The proposed Project will add two truck loading racks and a few additional potential sources of LPG emissions (emergency relief/blowdown from chiller system, compressors, and odor removal bed), however there will be no increase in the permitted emissions from the facility. In general, flares have been documented to have hydrocarbon destruction efficiencies of 98 percent or greater. Very small amounts of VOCs (LPG not destructed) will be emitted as a result of this Project. (Air Quality Permits are attached as Exhibit 7).

The ability to bring more LPG into the region by railcar will reduce the need to truck LPG from New Hampshire or Connecticut (locations of the only other LPG terminals in New England) to residents in Rhode Island. Utilizing railcars to transport LPG into Rhode Island is a more efficient method than truck transport.

In conclusion, operational impacts on air quality will be minimal and it is not anticipated that the proposed Project will have a significant effect on the air quality in RI or of downwind areas. The current flare permits will be amended to include a few additional LPG sources, however the emission limits in the permits will not be increased.

## **7.7 Land Use and Recreation**

The Project will be constructed within an existing industrial port where Sea 3 Providence's existing liquid propane facility is currently in operation; therefore, it will not displace any existing land uses, nor will it affect any future development proposals that meet local zoning requirements. The former warehouse south of the liquid propane facility is currently vacant and this land too lies within the Port/Maritime Industrial Waterfront District. In addition, the Project utilizes two abandoned roads (Seaview Road and Harbourside Road) and a portion of an abandoned railroad track; thus, making use of infrastructure that are already in place.

Impacts associated with the construction phase of the Project will be temporary, and present land uses within the Study Area can continue during and following construction. Sea-3 Providence will provide notification of the intended construction plan and schedule to surrounding landowners, particularly the Johnson and Wales University Harbor Campus so that the effect of any temporary disruptions may be minimized.

No existing recreational uses on the Providence River will be displaced either short-term or long-term by the Project since this portion of the Providence River is already zoned for maritime industry.

The Project will occupy areas dedicated to use for industrial ports and utilize transportation infrastructure already in place. Therefore, any future development proposals that meet local zoning requirements will not be affected. Short-term land use impacts may occur during the construction phase of the Project due to the potential for traffic disruption on the public roadways but will resume to pre-construction conditions following the completion of the Project. Sea-3 Providence will provide notification of the intended construction plan and schedule to affected landowners and abutters so that the effect of any temporary disruptions may be minimized and those affected by the construction-phase of the Project may plan ahead.

## **7.8 Visual Resources**

Visual and aesthetic impacts from facilities expansion will not substantially alter the overall visual setting of the existing liquid propane facility. The Project Area already lies in an existing port and will utilize existing railroad tracks and currently abandoned roadways. Due to the presence of a preexisting aboveground 19 million-gallon liquid propane holding tank, which has been onsite since 1975, and a stone containment berm, the additions to the Port of Providence proposed in the expansion Project will not result in major visual changes from the existing structural features already on site. No long-term impacts to visual resources are anticipated because of the Project.

## **7.9 Noise**

The Project is located entirely within the industry waterfront site of ProvPort which is intended as a hub of water dependent industrial and commercial uses. The Project is not in close proximity to any residential structures and is in fact more than 1500 feet away from the nearest residential structure. The general surrounding area is one where ambient sound levels are influenced by diverse factors including vehicular noise, commercial and industrial activities, and outdoor activities. Temporary construction noise may be generated by the Project. The generation of noise will result from the operation of construction equipment and vehicles such as trucks with diesel engines, excavators, jackhammers, drilling equipment, and cable installation rigs. Proper mufflers will be required to control noise levels generated by construction equipment. In connection with this Site Report, Sea-3 Providence caused a noise analysis to be performed by Dr. Robert Palermo of MPE, Inc. which has been incorporated below.

### **7.9.1 Noise Analysis**

Noise is often described as an unwanted or offensive sound and becomes unwanted when it interferes with normal activities such as sleep, work, communication, or recreation. Sound is described based on its loudness or intensity (sound level), the frequencies of sound, and the variation of the sound over time. The most common measurement of noise is the decibel (dB) level. It can be measured with a simple Sound Level Meter having an A-weighting filter to simulate the subjective response of the human ear. Sound levels are most often measured on a logarithmic scale of decibels relative to 20 micro-Pascals in air. Airborne sound can have a range of effects on humans including speech interference, sleep interference, annoyance, and physiological effects at high amplitudes resulting in pain or possible hearing loss. How people perceive sound depends on several characteristics, including:

Sound level is based on the amplitude change in pressure and is related to the loudness or intensity. The general relationships between sound level and human perception can be summarized as follows:

- A 3-decibel (dB) increase is a doubling of acoustic energy and is the smallest difference in sound level that can be perceived in most environments;
- A 10-dB increase is a tenfold increase in acoustic energy and is generally perceived as a doubling of loudness to the average individual;
- Sounds are comprised of acoustic energy distributed over a wide range of frequencies; and
- Sound levels reported in octave or one-third-octave frequency bands are often used to describe the frequency content of different sounds. Some sources of sound can generate “pure tones,” which is when there is a concentration of sound within a narrow frequency range such as a whistle. Humans can hear pure tones very well, and such conditions can be a cause of increased annoyance.

Typical noise levels for both indoor and outdoor activities are summarized in Table 7-1 which follows. The level of offensiveness increases as the noise levels increases. The Occupational Safety & Health Administration (OSHA) has established a time weighted average (TWA) permissible exposure limit of 90 dBA over an eight-hour work shift. The American Conference of Industrial Governmental Hygienist (ACGIH) has also established a TWA of 85 dBA over an eight-hour period.

**Table 7-1 - List of Common Outdoor & Indoor Sound Levels**

Sound Pressure Level in dBA	Evaluation	Outdoors	Indoors
140	Deafening	Jet aircraft taking off at 75 ft.	
130	Threshold of pain	Jet aircraft takeoff at 300 ft.	
120	Threshold of feeling	Train, Jack hammer	Rock band concert
110	Extremely Loud	Jet flyover at 1,000 ft., Chain Saw	Inside propeller plane
100	Very Loud	Motorcycle at 25 ft, auto horn at 10 ft, crowd noise at football game	Hand drill
90	Very Loud	Propeller plane flyover at 1,000 ft., noisy urban street, Lawn Mower	Full symphony or band, food blender, noisy factory
80	Moderately Loud	Diesel Truck (40 mph) at 50 ft.	Inside auto at high speed, garbage disposal, dishwasher, alarm clock
70	Loud	B-757 cabin during flight	Close conversation, vacuum cleaner, electric typewriter
60	Moderate	Air-conditioner condenser at 15 ft., near highway traffic	General office, normal conversation
50	Quiet	Walking in the forest	Private office
40	Quiet	Farm field with light breeze, birdcalls	Bedroom, average residence (without television and stereo), library
30	Very Quiet	Quiet residential neighborhood	Recording Studio
20	Very Quiet	Rustling leaves	Quiet theater, whisper

Sound Pressure Level in dBA	Evaluation	Outdoors	Indoors
10	Just audible	Barely detectable	Human breathing, a pin dropped

### Noise Summary:

The Sea 3 Providence facility is located in an industrial park. The residential locations surrounding the facility are at a distance of approximately 1,853 ft. to 2,841 ft. away as shown on Table 3. Noise levels for construction equipment to be used during the planned construction at the facility were obtained from the U.S. Department of Transportation, Federal Highway Administration (FHA).

A simplified point source noise attenuation equation was used to estimate the noise level at five (5) residential area locations immediately surrounding the Sea-3 Providence site (see Table 7-3 below). The following equation was used to estimate the noise levels at the referenced distances as shown on Table 7-3:

$$LP_2 = LP_1 - [20 \log_{10} (r_2/r_1)]$$

Where:

LP<sub>2</sub> = final noise level (dB) at r<sub>2</sub>

LP<sub>1</sub> = initial noise level (dB) at r<sub>1</sub>

r<sub>1</sub> = distance from SPL Meter to initial noise source (feet)

r<sub>2</sub> = distance to area residential/commercial building from initial noise source (feet)

Every doubling of the distance from the noise source will result in a 6 dB decrease in the noise level which result in a 31 dBA to 37 dBA decrease in noise levels from the equipment noise source(s) located at the Sea 3 Providence site (see Table 7-2).

**Table 7-2 – Noise Emission from Construction Equipment**

Equipment Description	Averaged Equipment Noise Level dBA (A-weighted Scale)
Excavator	81
Backhoe	78
Dump Truck	76
Front End Loader	79
Crane	81
Grader	85

Note: Construction equipment noise levels obtained from U.S. Department of Transportation, Federal Highway Administration (FHA), noise measurements taken from a distance of 50 ft. from equipment source.

**Table 7-3 – Estimated Noise Impact at Nearest Residential Locations**

Receptor	Approximate Compass Direction	Distance from Sea-3 LPG Expansion Site (ft.)	Equipment Noise Level dBA (A-weighted Scale)	Receptor Sound Impact dBA (A-weighted Scale)
Johnson & Wales University	West	1,981	85	53.04
Residential Apartment off of Harborside Boulevard	West	1,853	85	53.62
Residential Neighborhoods off of Sunnyside Ave	East	2,460	85	51.16
Save the Bay Center	South	1,689	85	54.43
Narragansett Bay Commission off of Earnest Street	North	2,841	85	49.91

Note: Highest equipment noise level was used for the noise impact analysis.

The Noise Ordinance of the City of Providence, Article III Noise Control, Section 16-98 - Construction and Repairs notes that sounds that exceeds 65 dBA are considered excessive or offensive noise. The noise levels calculated at the residential locations surrounding the facility are well below this limit of 65 dBA (see Table 7-3 above).

Section 16-93, entitled “Unnecessary, Excessive or Offensive Noise Prohibited,” notes for residential properties between the hours of 7:00 AM to 9:50 PM, the sound limit cannot exceed 65 dBA and for 10 PM to 6:59 AM cannot exceed 55 dBA. The facility will not be operating construction equipment after 10 PM and would not be subject to noise level exceedance at that time. Also, as shown above in Table 3, above all of the receptor locations fall below the evening 55 dBA limit.

In summary, the construction equipment noise levels are well within the regulatory limits specified in the Providence, RI Noise Ordinance. The noise levels calculated at the property boundaries are below 55 decibels which as shown on Table 7-1 are levels comparable to a quiet walk in the forest. The sound levels calculated at the nearest residential property boundaries will not result in unwarranted or offensive sound levels. Therefore, this Project will not have a significant impact on the surrounding community from a noise generation and nuisance perspective.

During the operational phase of the project, the train schedule will be running per the pre-project schedule and make stops on site, when requested. No additional train noise impacts are anticipated as a result of the Project.

## **7.10 Historic and Cultural Resources**

Consultation with the Rhode Island Historical Preservation and Heritage Commission (RIHPHC) about potential effects to historic resources is ongoing. There are no known archaeological areas of significance within the vicinity of the project area, which was artificially constructed with fill soils during the mid-twentieth century.

Potential impacts to both known and unknown historic and archaeological resources will be addressed through consultation with the RIHPHC.

No effects to above-ground historic resources are anticipated. It is the opinion of the cultural resources staff that, as National Register of Historic Places (NRHP) listed or eligible properties that are within one kilometer of the project area are associated with the industrial use of Fields Point, they will not lose integrity through continued similar land use.

All proposed impacts from this project will occur within areas that are already extensively disturbed by industrial use of the Point. Risks to above-ground resources often include indirect ones, such as loss of integrity in association or setting. However, this Project will not change the land use strategy locally or alter the integrity of existing resources, and neither direct nor indirect effects to historic above-ground resources are anticipated.

## **7.11 Transportation**

A traffic analysis has been performed by John Shevlin, P.E. of Pare Corporation which has studied the impact of the Sea 3 Rail Project, or lack thereof, on traffic and transportation conditions in the surrounding area. (Exhibit 5). This project is not anticipated to have any significant impact on traffic and transportation conditions either during construction or after completion. The construction-related traffic increase will be small relative to total traffic volume on public streets in the area. In addition, it will be intermittent and temporary, and construction related traffic will cease once the Project is completed.

No long-term impacts to traffic flow within roadways are expected. Sea 3 Providence's existing permits allow for 244 daily truck shipments on site. Even after completion of the incorporation of the rail service, operations will not come close to reaching the maximum allowable daily truck traffic on the site. It takes approximately 30 minute to load the LPG into the trucks at the truck rack. The maximum allowable capacity for 5 truck racks spaces would be 10 trucks per hour. There is no anticipated queuing of trucks in connection with the loading and distribution scheduled. However, even if truck do que, it will not impact public traffic on Allens Avenue. The site has approximately 600 feet of truck queuing area on-site and the site itself is located deep within ProvPort behind the security checkpoint.

The site is located within 1,700 feet of I-95 in Providence. This will be the primary roadway traveled by the trucks once they have completed the loading process and depart for distribution of the LPG to customers. The LPG will generally be distributed to distributor customers who deliver to end-user consumers within a 150 mile radius of Providence. This is minimum traffic in comparison to the current daily travel on Allens Avenue and I-95 and does not present a significant impact on traffic conditions or transportation.



## **7.12 Safety and Public Health**

The proposed ancillary operation enhancements and incorporation of the option parcel into Sea 3 Providence's operation in Prov Port will be designed to be in full compliance with National Fire Protection Association (NFPA) 58 – Liquefied Petroleum Gas Code. The design, build-out and operation of the facility based on NFPA 58 is a Best Management Practice (BMP) standard that addresses safe operation of LPG facilities. It is the standard of practice that has been adopted under the State Fire Code, NFPA 1 – Fire Code. An updated NFPA Fire Safety Analysis (FSA) has also recently been undertaken for the facility in accordance with the NFPA Fire Safety Analysis Manual for propane gas storage facilities and is attached as Exhibit 8. The facility will be fully fenced, secured and staffed 24/7 to prevent unauthorized access/entry into the facility.

Additionally, the Sea 3 Providence engineering team is proactively working with the State Fire Marshal and the Providence Fire Department (PFD) to address their concerns so that the facility expansion will address all safety fire code requirements to ensure that it is built and operated safely, thus minimizing any potential impacts to safety, public health and to the local community.

The Sea 3 Providence Fire Safety Analysis incorporates fail safe concepts and redundant safety controls to include emergency propane shut down devices at propane transfer points, early warning and detection of propane gas, and early warning and detection of heat. These controls will shut down the supply of propane at the source and associated equipment if and when unsafe conditions are observed or detected. Propane gas sensors and heat detectors will be located throughout the facility to provide real time gas and heat monitoring coverage throughout the facility.

The facility will have in place prior to operating an Occupational Safety and Health Administration (OSHA), Process Safety Management (PSM) Plan and U.S. Environmental Protection Agency (EPA), Risk Management Plan (RMP), which are both operational plans that identify steps the facility will take to prevent an accident or incident from occurring. These plans further describe the emergency response measures that will be implemented in the event an incident occurs. The Process Hazard Analysis (PHA) which is a component of these plans identifies potential safety hazards and recommends mitigative measures that can be taken to reduce or eliminate the hazards.

An Emergency Response Plan (ERP) will also be prepared for the facility in the event an unsafe condition develops or if an incident occurs. The ERP requires training of all on-site operational personnel, first responders and local fire department to help ensure that all emergency response personnel responding to an incident are prepared and trained to respond to an event. All response personnel will be trained according to the Petroleum Education and Research Council (PERC) and the National Propane Gas Association (NPGA) Certified Employee Training Program (CETP) covering plant operations and responding to propane emergencies. Tabletop and Mock Exercises will also be scheduled at the facility to better prepare emergency response personnel for an actual propane event.

To address the U.S. Department of Transportation (DOT), Federal Railroad Administration (FRA), Federal Railroad Safety Act (FRSA), the facility personnel will also receive DOT safety training on hazardous materials (HM). The HM training includes general awareness training, function specific training, safety training and security awareness training. The function specific training will cover safe operations of the rails cars during LPG offloading, product transfer, braking system, wheel blocking, securement of hatches/openings, top offloading procedures, operation of fire suppression monitors for the rails cars, etc.

Having the above effective measures in place will help ensure that the facility is safe and that it will protect the local community and public health.

## **8.0 MITIGATION MEASURES**

The Project is not anticipated to have any long-term impacts to the natural or social environment of the Study Area. Mitigation measures for this Project will be used to reduce the impacts of the construction work on the natural and social environment. There are no long-term impacts to mitigate as a result of this Project; therefore, mitigation efforts are focused on the construction phase.

### **8.1 Natural Environment**

#### **8.1.1 Soil Erosion and Sediment Controls**

Soil erosion and sediment controls will be used during construction activities involving disturbance of soils. These will be installed and maintained to mitigate any potential migration of sediment into the Providence River and into catch basins within the Project Area. Sediment control measures will include the installation and maintenance of silt fencing, straw bales, straw wattles, and silt sacks for dewatering and around any soil stockpiles. Sweeping will occur within the Project Area daily, or as needed to avoid any sedimentation out of the Project Area. These measures will be inspected regularly during construction and maintained as necessary in accordance with the ELUR, SWMP, site-specific environmental guidance and/or RIDEM regulations. Construction crews will be responsible for conducting daily inspections and identifying erosion controls that must be maintained or replaced, as necessary.

Upon completion of construction activities, pervious areas will be stabilized as necessary.

#### **8.1.2 Soil Management**

Given the historical industrial usage of the Project Area, soil pre-characterization will take place in advance of construction, where feasible, to determine handling and management and disposal methods. Site specific handling and management of soils generated will be implemented in accordance with the ELUR, SMP, site-specific environmental guidance and/or RIDEM regulations to select the appropriate re-use or disposal methods. Soil disturbed during construction activities will be properly handled, managed, and disposed or reused in accordance with the ELUR, SMP, site-specific environmental guidance and/or RIDEM regulations. Following the completion of construction, disturbed areas will be restored to their original condition.

### **8.1.3 Dewatering**

If excavations within the Project Area requires dewatering of groundwater or accumulated storm water then dewatering BMPs (e.g., filter bags, absorbent materials, splash pads) will be implemented on-site to treat pumpate prior to discharge to the ground surface. This includes testing, treating, and discharging the water on site. Dewatering will be performed in accordance with the EURL. (Exhibit 3).

Alternatively, groundwater or accumulated storm water may be containerized for proper off-site disposal. Dewatering discharge water will not be released near wetlands, streams/rivers, other sensitive resource areas, directly into catch basins, or other storm water devices, prior to filtering the sediment from the dewatering pumpate. Measures will be implemented to ensure construction dewatering is not directed toward historic structures to avoid potential flooding or water-related damages. If it is determined that the chosen controls are not appropriately filtering the fine sediment from the dewatering pumpate, then the controls shall be revised or supplemented. Dewatering methods will be conducted in conformance with Rhode Island Storm Water Program, RIPDES Regulations and the EURL.

### **8.1.4 Dust and Vibration**

Reasonable precautions will be taken to prevent the excessive generation of nuisance dust and vibration during soil excavation, stockpiling, loading, and other soil handling activities for the facilities expansion. Dust control measures will be implemented, as required, to prevent airborne particulate matter in accordance with the ELUR.(Exhibit 3). Exposed soils within the Project Area shall be wetted and stabilized as necessary to suppress dust generation. As required, enclosure systems will be installed around construction work zones to reduce the spread of construction dust. The Contractor will be responsible for routine sweeping of the Project Area where excess sediment may accumulate or may be tracked onto the paved roads by construction vehicles. Work within the Project Area will comply with all applicable federal, state, and local regulations, including the RIDEM's Air Pollution Control Regulations, and specifically Regulation No. 5 regarding control of fugitive dust.

Since the nearest historic site to the Project Area is approximately 1,300 feet to the northwest, there are no anticipated vulnerabilities to vibration from Project construction.

A Dust Control Plan (DCP) will be prepared to address airborne dust emissions from construction equipment. The DCP will provide a description of the measures that will be implemented to reduce fugitive dust emissions during the construction phase of the expansion project. The DCP will include active provisions to monitor on-site dust concentrations using direct reading dust monitors. When dust concentrations exceed the established threshold. dust suppression measures will be immediately implemented. The DCP will also contain provisions to control fugitive dust emissions including:

- Water trucks, buffaloes or other equipment will be utilized to apply water to unpaved construction areas during construction activities unless existing conditions are sufficiently wet to prevent dust;
- Misting water sprays will be applied to sufficiently reduce airborne dust from demolition work;

- Unpaved construction areas will be watered at least three times daily during construction and hauling;
- Materials transported off-site will be either sufficiently watered or securely covered;
- Construction areas will be sufficiently dampened to control dust caused by construction hauling and during periods subject to windblown erosion;
- Soil stockpiles will be stabilized by wetting or by a secure tarp or covering; and
- Earthmoving and excavation activities will be discontinued during periods of high winds to prevent excessive amounts of fugitive dust generation.

Implementation of an effective DCP will ensure that fugitive dust submissions are controlled and are contained on-site. There is no significant impact anticipated to the surrounding environment as a result of dust and vibration during construction.

## **8.2 Social Environment**

### **8.2.1 Traffic**

A traffic analysis has been performed by John Shevlin, P.E. of Pare Corporation which has studied the impact on the Sea 3 Rail Project, or lack thereof, on traffic and transportation conditions in the surrounding area. (Exhibit 5). This project is not anticipated to have any significant impact on traffic and transportation conditions either during construction or after completion. The construction-related traffic increase will be small relative to total traffic volume on public streets in the area. In addition, it will be intermittent and temporary, and construction related traffic will cease once the Project is completed.

No long-term impacts to traffic flow within roadways are expected. Sea 3 Providence's existing permits allow for 244 daily truck shipments on site. Even after completion of the incorporation of the rail service, operations will not come close to reaching the maximum allowable daily truck traffic on the site. It takes approximately 30 minute to load the LPG into the trucks at the truck rack. The maximum allowable capacity for 5 truck racks spaces would be 10 trucks per hour. There is no anticipated queuing of trucks in connection with the loading and distribution scheduled. However, even if truck do que, it will not impact public traffic on Allens Avenue. The site has approximately 600 feet of truck queuing area on-site and the site itself is located deep within ProvPort behind the security checkpoint.

The site is located within 1,700 feet of I-95 in Providence. This will be the primary roadway traveled by the trucks once they have completed the loading process and depart for distribution of the LPG to customers. The LPG will generally be distributed to distributor customers who deliver to end-user consumers within a 150 mile radius of Providence. This is minimum traffic in comparison to the current daily travel on Allens Avenue and I-95 and does not present a significant impact on traffic conditions or transportation.

## **8.2.2 Historic and Cultural Resources**

Consultation with the RIHPHC has been initiated by TNEC. No effects to historic above-ground or archaeological resources are anticipated, and so no mitigation measures are proposed.

## **8.2.3 Supervision and Monitoring**

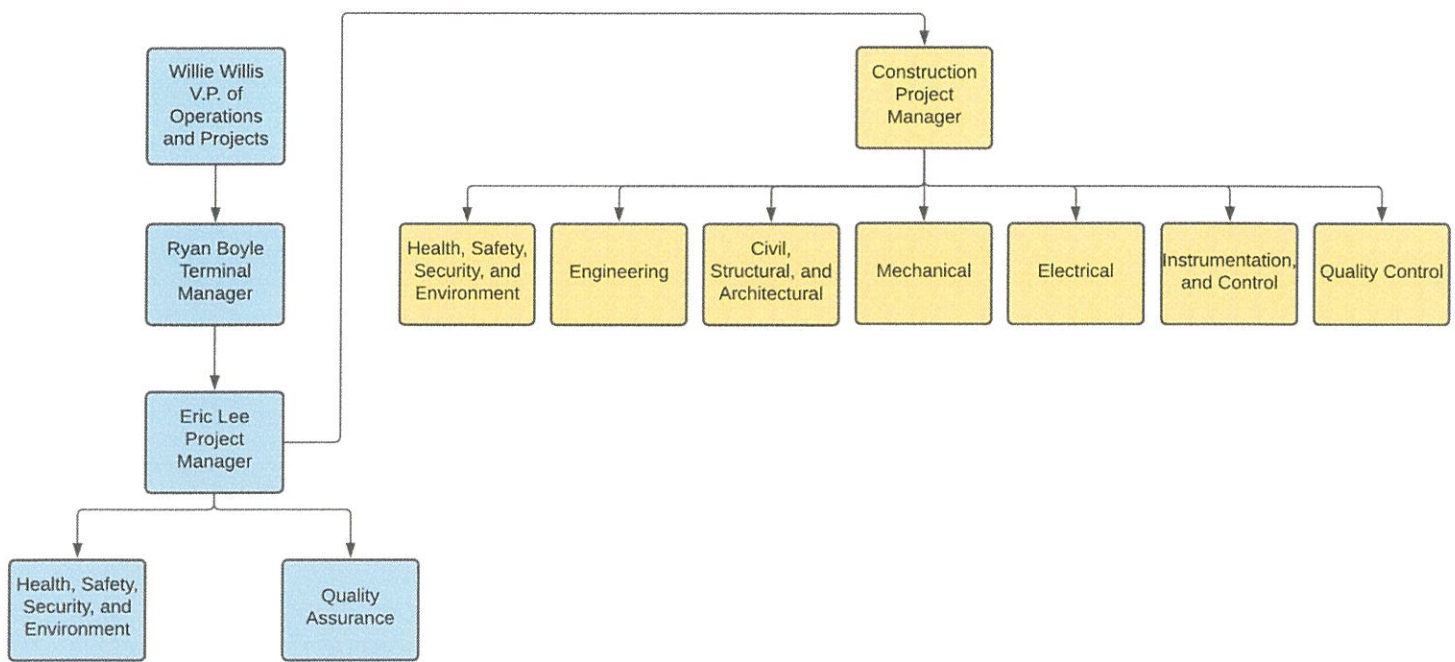
Every construction project requires a unique team to plan, design, construct and maintain the project. The project hierarchy incorporates various professional job positions like project manager, skilled trade engineers, architects, construction manager, and many more. The project hierarchy is defined below in brief with a little description.

These exquisite professionals specifically possess a background in project supervision or construction projects. Some of these professionals also play a vital role in the Company. These professionals typically have significant industry experience directly related to the role they possess.

- Project Management
- Civil Engineer
- Safety Director
- Construction Engineer
- Building Services Director
- Senior Management

The project management professionals who have planned many types of projects similar to this. Work as a team to design and focus a great deal on safety, determining the best materials and methods for particular kinds of construction projects. They also work in close association with skilled trade engineers while developing the design plans of the construction to be pursued. There are a plethora of job profiles that are available at this level of project hierarchy who perform various tasks on the construction field. These are the professionals who manage the skilled workers and assign them activities in order to carry forward the construction project.

Construction is a diverse field that needs professionals with different specializations. There are several lower-level employees who will be required to carry out the construction-based activities in numerous ways. These are the skilled workers who are not required to possess mandatory academics but need specific experience in particular construction-oriented fields. The job profiles at this level range from a general laborer to a professional. (See Table 8-1 below).



## 8.2.4 Safety and Public Health

Practices to be used to protect the public during construction will include, but not be limited to, establishing TMPs for construction traffic on busy streets to maintain safe driving conditions, and restricting public access to potentially hazardous work areas.

Only 40-hour OSHA trained crews will perform construction in areas where there is known contamination. Personal protection equipment will be required for all on-site workers potentially exposed to impacted materials.

As previously discussed, before, during and after construction, the Blackline Sea-3 Providence LPG Expansion will be designed to be in full compliance with National Fire Protection Association (NFPA) 58 – Liquefied Petroleum Gas Code. The design, build-out and operation of the facility based on NFPA 58 is a Best Management Practice (BMP) standard that addresses safe operation of LPG facilities. It is the standard of practice that has been adopted under the State Fire Code, NFPA 1 – Fire Code. An updated NFPA Fire Safety Analysis (FSA) has also recently been undertaken for the facility in accordance with the NFPA Fire Safety Analysis Manual for propane gas storage facilities and is attached as Exhibit 8. The facility will be fully fenced, secured and staffed 24/7 to prevent unauthorized access/entry into the facility.

Additionally, the Sea 3 Providence engineering team is proactively working with the State Fire Marshal and the Providence Fire Department (PFD) to address their concerns so that the facility expansion will address all safety fire code requirements to ensure that it is built and operated safely, thus minimizing any potential impacts to safety, public health and to the local community.

The Sea-3 Providence Fire Safety Analysis incorporates fail safe concepts and redundant safety controls to include emergency propane shut down devices at propane transfer points, early warning and detection of propane gas, and early warning and detection of heat. These controls will shut down the supply of propane at the source and associated equipment if and when unsafe conditions are observed or detected. Propane gas sensors and heat detectors will be located throughout the facility to provide real time gas and heat monitoring coverage throughout the facility.

The facility will have in place prior to operating an Occupational Safety and Health Administration (OSHA), Process Safety Management (PSM) Plan and U.S. Environmental Protection Agency (EPA), Risk Management Plan (RMP), which are both operational plans that identify steps the facility will take to prevent an accident or incident from occurring. These plans further describe the emergency response measures that will be implemented in the event an incident occurs. The Process Hazard Analysis (PHA) which is a component of these plans identifies potential safety hazards and recommends mitigative measures that can be taken to reduce or eliminate the hazards.

An Emergency Response Plan (ERP) will also be prepared for the facility in the event an unsafe condition develops or if an incident occurs. The ERP requires training of all on-site operational personnel, first responders and local fire department to help ensure that all emergency response personnel responding to an incident are prepared and trained to respond to an event. All response personnel will be trained according to the Petroleum Education and Research Council (PERC) and the National Propane Gas Association (NPGA) Certified Employee Training Program (CETP) covering plant operations and responding to propane emergencies. Tabletop and Mock Exercises will also be scheduled at the facility to better prepare emergency response personnel for an actual propane event.

To address the U.S. Department of Transportation (DOT), Federal Railroad Administration (FRA), Federal Railroad Safety Act (FRSA), the facility personnel will also receive DOT safety training on hazardous materials (HM). The HM training includes general awareness training, function specific training, safety training and security awareness training. The function specific training will cover safe operations of the rails cars during LPG offloading, product transfer, braking system, wheel blocking, securement of hatches/openings, top offloading procedures, operation of fire suppression monitors for the rails cars, etc.

Having the above effective measures in place will help ensure that the facility is safe and that it will protect the local community and public health.

## **8.2.5 Noise**

As discussed in Section 7.9, the Project is located within urban portions of the City of Providence, where ambient sound levels are influenced by vehicular traffic, commercial/residential construction, roadway construction, and highway and railroad transportation corridors. Construction-related noise

will be intermittent and will occur throughout Project construction. TNEC will require its contractors to implement source controls to reduce noise emissions during the construction phase of the Project.

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